Computing News

News from the Computing Division Fermi National Accelerator Laboratory

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FermiTools

The Fermilab Computing Division has started a coordinated effort to offer a selection of software developed at Fermilab to the wider community. The Fermilab Software Tools Program—or FermiTools—is intended to provide an umbrella for providing software that is already widely used and well accepted at the Laboratory to outside users. Our goal is to foster mutually beneficial collaboration in the use and further development of the software. The program is intended to allow for software for any platform—unix, DOS, etc.—and for packages from self-contained small programs to large software systems.

The FermiTools anonymous FTP site and WWW page were recently announced. The Program currently includes seven software packages—ranging from the well known Cooperative Processes System (**CPS**), used by many experiments for data reduction on the Fermilab Farms systems, to **SPUDS** (Single Platform Uniform Diagnostic System)—a standalone DOS based CAMAC and FASTBUS diagnostic environment developed by the Data Acquisition Hardware Group and used in many test bench applications.

Several hundred users have already accessed the most popular of the tools, **NEdit**—the WYSIWYG motif-based editor developed by the Physics Analysis Tools Department (PAT). Also included in the initial release are: **murmur**, the distributed error reporting and centralized message display product from the Online Systems Department; **histoscope**, the gui-based histogram toolkit and viewing system from PAT; **juke**, software from the Operating Systems Department for the control of robotic media handlers; and **FRC**, the suite of software developed by CDF and OLS for the CDF FASTBUS Readout Controller.

FermiTools was initiated by Joel Butler, Head of the Computing Division, and implemented by a technical working group which coordinates the program. This group currently meets biweekly to provide support for the program and monitor its progress. We are hoping to take the opportunity in the longer term to address both development of enhancements of existing software to meet the requirements of the program (supply side) and to promote collaboration with external users on the use of the packages (demand side). We welcome input and suggestions of software that could be included in the program from other Divisions and Sections in the Laboratory.

With this program the Fermilab Computing Division is extending its commitment to continue the development and support of quality software, and hopes to provide benefit to the wider community through its efforts.

The software and documentation are available via anonymous ftp from `ftp.fnal.gov` (in the `/pub` directory), and the WWW server at URL: `http://www-fermitools.fnal.gov/`

The introductory screen is shown on the next page.

Ruth Pordes, x3921, ruth@fnal.gov

What's Inside

FermiTools Software Repository

The Fermilab Software Tools Program (FermiTools) is an effort to provide the internet community with the Fermilab developed software packages that we have found most useful, and that we believe have general value to other application domains. The Fermilab Computing Division is offering this software to the wider community, with the goal of entering into collaboration with interested and committed users in the deployment, joint development, and support of software of mutual benefit.

You can access packages by

- T Title
- S Subject
- Searching Abstracts
- Browsing ftp Site
- N What's New

Check here for more information about

- L Licensing
- S Support
- F FermiTools Program
- F Fermi National Accelerator Laboratory

C D

Art Neubauer Says Good-bye

On September 30th, 1994 Art Neubauer retired from the laboratory after 25 years of service. His name and the name "PREP" are practically synonymous at the lab. Every person who has ever been a part of installing or running an experiment, a test beam activity, or even a test stand knew Art and valued his technical advice and his willingness to help locate some type of electronics and equipment to do the job. Now, the Computing Division and the lab is going to have to get along without his steady presence and watchful eye over the stock of over 35,000 modules.

Art will not be replaced - how could he be! Several people will take on parts of his function. The bulk of Art's responsibilities - that of managing the PREP pool of electronics and data acquisition modules for experiments - has been taken over by Adam Walters of the Equipment Support Department. Adam will handle all new requests for equipment and will receive all lists of requests for Memoranda of Understanding. He will plan and manage the electronics purchases for experiments. Adam will also provide the front line help for technical questions on the capabilities and availability of modules. Adam will refer people, as necessary, to experts within the Equipment Support and Online Support Departments, or to others in the lab.

Some time before Art's retirement, John Petriello was appointed leader of the Equipment Logistics Group, to manage the day-to-day operations of the PREP counter and various other equipment services run by the Computing Services Department. John and his staff will handle the receipt, and exchange, where appropriate, of broken equipment and the issuing of available equipment which is part of an agreed Memorandum of Understanding or an approved ad-hoc request.

The detailed specification and purchase of data acquisition and online computing equipment for experiments will be handled by the Online Support Department's online liaison to an experiment with help and support from various groups and experts from within the Computing Division.

People with requests, questions and complaints are encouraged to send e-mail to PREPREQ (or just PREP) on FNAL: `prepreq@fnal.gov`. This will ensure that your request or inquiry goes not only to the PREP equipment manager, Adam Walters, but to many of the other people mentioned above and myself, so that everyone is informed. Users of the PREP pool of equipment are also reminded that planning is encouraged. Please do not turn up with a list of PREP module requests expecting to receive them immediately. Everyone in Equipment Support and the Equipment Logistics Services group is working hard to ready equipment for the start of Fixed Target experiment commissioning. Please provide your requests for additional equipment and your requests for ad-hoc or temporary test equipment well in advance so that we may all plan accordingly.

Vicky White, white@fnal.gov

X Terminal Boot Service Available

In an effort to provide more complete service to our X terminal users, the Computing Division has begun providing boot/configuration/font service for terminals on the division's recommended list. At the present time this includes the NCD and Tektronix product lines (see TN0060 and TN0079 for details). The boot service is provided on fnalu.

Note that this represents a change from our previous policy of only providing a software kit for installation on local machines. We feel that the addition of the Tek terminal line to the recommended list makes a central boot service necessary and that it is no longer feasible to ask each group to maintain their own copy of all of the software.

Who do we expect will use boot service? In practice, anyone with an NCD or Tektronix X terminal. In particular:

- New Users. If you have your terminal and there is no boot software available on your local nodes, you should use the central boot service.
- Users in small groups. Groups with a small number of terminals may prefer to use the service instead of getting their own copy of the software.
- Special Projects. Projects which will be using the terminals for a short amount of time (e.g., Snowmass-style conferences) or without one particular host computer should use the service.
- Backbone/FNALV users
- Users whose own server is down

Large Groups

To reduce network loading, groups with a large number of terminals, like CDF and D0, should set up a boot host on their local network. We will assist with the installation of the software on a local Unix host and provide training with manipulation of configuration files, terminals, and font service. Local administrators will be walked through the setup of the software and the addition of terminals to the local network. This will result in a more homogeneous environment, so that changing boot hosts will not result in great change in configuration, and support will be easier.

General Considerations

Users/administrators who wish to boot locally will be able to obtain a UPD kit and instructions on mirroring the fnalu environment. Kits will be provided for AIX, Sun, and SGI environments. Full support will be provided to such users. A VAX kit will be available on request. Minimal support will be provided with VAX- and VMS-specific issues.

Using the Boot Service

Users wishing to take advantage of the boot service should fill out the online request form available from the `FORMS` folder of **INFO** or from `fnal.announce.forms`, and e-mail it to `x-support@fnsg01`. A response will be mailed within a day with instructions on how to make use of the service. Please contact me if you have questions.

Jeff Kallenbach, x2210, jeffk@fnal.gov

WWW Access to X and X Terminal Info

We've begun placing X and X–terminal information on WWW. It is available at URL:
`http:cdibm.fnal.gov:8000/x-support.html`
or via Fermilab at Work / Computing Division / Physics Analysis Tools. The various pieces of the tree will be filled in in the coming weeks, and I'll post in **INFO** and the newsgroup as the important information becomes available.

Please notify me if there are any questions or problems. I would also like to encourage you to send in suggestions for other articles or information you'd like to see.

Jeff Kallenbach, x2210, jeffk@fnal.announce

White Pages Project

The lab has joined the ESnet/NERSC White Pages Project. This provides white pages directory services to members of the Energy Science Network. The white pages project was created to allow members of the Energy Science Network the ability to locate information about a colleague over the Internet. The ESnet/NERSC White Pages is similar to a large online phone book. Anyone with an account on the lab mailserver (FNAL) will have their lab extension, Internet mail address, and US mail address made available to the Internet via the project.

There are four ways to query information about a colleague listed under the white pages service: **whois**, electronic mail, **telnet** and via WWW feed.

WHOIS

The white pages service is available via the Internet **WHOIS** service. **WHOIS** is available on most Unix machines and VMS systems running Multinet. Using the host option will direct queries to the specified host. The proper use of this command is:

`whois -h wp.es.net` *`name`* (UNIX)
`WHOIS /H=WP.ES.NET name` (VMS running Multinet)

where `name` may be a last name, a full name (in quotes), first name, or an e-mail name. All searches are case insensitive. For example:

```
whois -h wp.es.net smith
WHOIS /H=WP.ES.NET SMITH
whois -h wp.es.net "john smith"
WHOIS /H=WP.ES.NET "JOHN SMITH"
```

```
whois -h wp.es.net john
WHOIS /H=WP.ES.NET JOHN
whois -h wp.es.net e8650
WHOIS /H=WP.ES.NET E8650
```

If an entry is found whose last name, full name, first name, or e-mail name contains `name`, that entry will be returned. If more than one entry is found, a one-line summary of all matches will be displayed. You may then resubmit the query using any of the information found in the summary, e.g., the full name (in quotes) or the e-mail name.

By default, searches are limited to ESnet committee members and ESnet networking and engineering staff. You may also focus your search on one particular ESnet backbone site. For example,

```
whois -h wp.es.net doody,fnal
whois -h wp.es.net "tim doody",fnal
```

Currently, the following ESnet backbone sites are participating in the White Pages Project and may be queried as described above:

AMES	Ames Laboratory
ANL	Argonne National Laboratory
BNL	Brookhaven National Laboratory
CEBAF	Continuous Electron Beam Accelerator Facility
FNAL	Fermi National Accelerator Laboratory
FSU	Florida State University
GA	General Atomics
HQ	DOE Headquarters
LANL	Los Alamos National Laboratory
LBL	Lawrence Berkeley Laboratory
LLNL	Lawrence Livermore National Laboratory
MIT	Massachusetts Institute of Technology
NERSC	National Energy Research Supercomputer Center
ORNL	Oak Ridge National Laboratory
PNL	Pacific Northwest Laboratory
PPPL	Princeton Plasma Physics Laboratory
SLAC	Stanford Linear Accelerator Center
SNL	Sandia National Laboratories
UTA	The University of Texas at Austin

MAIL

The White Pages service is available via electronic mail. A "WHOIS—like" command is placed in the subject field of the message. The reply will be a message containing the results of the query.

```
TO:whitepages@wp.es.net
SUBJECT:whois smith
```

or

```
TO: whitepages@wp.nersc.gov
SUBJECT:whois smith
```

TELNET

The white pages service is also available through a guest account for interactive use. Host `wp.es.net` supports a guest account with the username **`fred`** and no password. Once logged in, the user is placed into the **FRED** User Agent.

FRED has a whois command that performs White Pages queries. The output from a **FRED** `whois` query is formatted like the output from the **WHOIS** utility. Here are some examples:

```
fred> whois schmidt
fred> whois sch*
```

This looks for all entries beginning with **`sch`**.

```
fred> whois fullname "Jack Schmidt"
fred whois -org *
```

This reports on all organizations registered in the US.

WWW

WWW access to the ESNET project is available through `http://www.es.net/`. Once there, select the White Pages icon under the Other ESnet Information Services. The Mosaic interface is intuitive and easy to use.

If there are any questions, please contact me.

Jack Schmidt, Postmaster, x4060, schmidt@fnal.gov

C D

The New Computing News

As you have probably noticed, the Computing Division Newsletter has undergone several changes this year. The newsletter, formerly produced using Scribe on VMS, has migrated to FrameMaker in a UNIX and Macintosh production environment.

The makeover was more than just cosmetic. While the new layout is the most visible of the changes, the new production methods offer many features that were not available before the switch. Using FrameMaker allows the production staff to make use of the software's flexible layout options, multi-platform support and advanced graphics capabilities. In addition, third party products are now being evaluated that will allow us to automatically convert the *Computing News* files directory into HTML (HyperText Markup Language), the WWW standard. This will allow us to automatically post a WWW version of the *Computing News.*

The *Computing News* makeover was due to the combined efforts of Judy Nicholls, Pat Haring and Phil Stebbings, as well as to the comments and suggestions of many interested members of the Computing Division.

Subscribers will notice other improvements over the next few issues, including the addition of photographs and other complex graphical elements.

Phil Stebbings

Judy Nicholls, x3934, nicholls@fnal.gov

Postmaster's Corner

Sending e-mail offsite has evolved over the years. Originally, the only way to communicate was by means of Bitnet. With the growth of the Internet, a newer, more efficient way to send e-mail is now available—the Simple Mail Transport Protocol (SMTP), part of the TCP/IP protocol suite. The success of the Internet has resulted in a steady decline in the number of Bitnet nodes, with most of the remaining Bitnet nodes now accessible on the Internet and capable of receiving SMTP mail.

Users of Bitnet mail are strongly encouraged to switch to SMTP mail. SMTP mail reaches a much wider community than Bitnet mail, and generally provides more robust mail service. SMTP mail provides faster mail delivery and deals with link outages in a more efficient manner.

The Laboratory will be reviewing its support of Jnet (Bitnet on VMS systems) in the coming year. The Lab may elect to limit Bitnet support to the facility mail server (FNAL). If this happens, on-site Bitnet access will only be through use of a mail gateway, via FNAL. Users should begin to convert their mail aliases and distribution lists to use SMTP mail in order to minimize the impact of this possible change.

Jack Schmidt, Postmaster, x4060, postmaster@fnal.gov

UNIX

fmh 3.0 is now Available

The Unix Application Support Group has released a new version of the **MH**/**xmh** product known as **fmh** (Fermi Mail Handler). The latest version, 3.0, corrects several minor bugs in the integration of the two products (**MH** and **xmh**) and **fmhcrypt**, **ispell,** and **fmhprint**.

In addition, two new buttons have been added to the **xmh** interface:

The `extract` button will prompt you for a file name, and the selected message, or messages, will be extracted into the specified file name.

The `reply/include` button will initiate the `reply` function with the body of the message already in the responding message. The `reply` button, already available in the previous version, is still there and it works the same as before.

Version 3.0 of **fmh** also includes a new format for showing the message list (i.e., the `toc`). The `toc` list is created when the `rescan` button is selected. The resulting list is more appealing then the previous `toc` format.

A few new commands have been added to the suite of **fmh** commands. The `scans` command can be used on VT–based terminals to get a scan listing that fits on a 80 column width screen. This should prove to assist in reading email on non graphics based terminals.

The `fmhvacation` command has been added. This command will perform automatic mail responding while you're away from your mail. This feature will work with the existing command `fmhnewmail` feature. Please see the `-help` command arguments of `fmhvacation` and `fmhnewmail` for complete details.

A new feature has been added to the **fmh** environment, which allows for recently sent messages to be re-sent. This feature is similar to the VMS Mail command `SEND/LAST`. This feature must be enabled by the user using the `sendlast` command that is now provided with version 3.0 of **fmh**. Once enabled, all outgoing messages are saved in a default folder named`LAST`. By default, the last five messages are saved. Please see the `-help` command argument of **sendlast** for complete details.

Some modifications to **fvax2mh** have been incorporated. The `-vms` command line argument has been added to automatically extract VMS messages into **MH** folders directly from your UNIX machine. New to **fvax2mh** is the ability to extract individual VMS folders too. See the `-help` command line argument to **fvax2mh** for complete details.

A new component keyword has been added to the `.mh_profile` file, `fmhResource`**.** The Fermilab distribution of **xmh**/**MH** will use this resource to provide customizable X11 resource settings. At least one additional default resource setting can be used with 3.0 of **fmh**. A set of X11 settings has been defined as the `Executive` settings. Adding the entry `fmhResource:Executive` to the `$HOME.mh_profile` file will utilize the `Executive` definitions. Future distributions of **fmh** may include additional resource names.

If you have suggestions on additional X11 resources, please let me know.

Frank Koenen, x8042., koenen@fnal.gov

New Versions of tcl Products

tcl v7_3, tk v3_6, tclX v7_3a, blt v1_7 are **ups** products now available in KITS and on fnalu. These product versions correspond to the following products available off the net:

tcl	Tcl 7.3
tk	Tk 3.6
tclX	TclX 7.3a
blt	BLT 1.7

tcl, tool command language, is an extremely popular simple scripting language for controlling and extending applications, written by John Ousterhout. **tk**, built on top of **tcl**, is a toolkit for the X Window System from the same author. Extensions to **tcl** and **tk** are packaged as separate products:

Extended **tcl** (**tclX**), is a library package that augments the built-in **tcl** commands with many additional commands and procedures oriented toward system programming tasks.

ftcl provides additional extensions developed by the Online Systems Department in the Computing Division to provide command line editing capability, help facility, aliasing, and more sophisticated command line argument manipulation.

blt is an extension to **tk** from Bell Labs. **blt** provides drag-n-drop command, hypertext widget, bitmap command, table geometry manager, barchart widget, XY graph widget, window option command and watch command

When setup through **ups** the following shells are established:

tcl	**tclsh**
tk	**wish**
tclX	**tcl**
ftcl	**ftcl**
blt	**blt_wish**

The following sources of documentation and information about **tcl** provide good resources for using and understanding the software: *Tcl and the Tk Toolkit*, by John Ousterhout, the newsgroup `comp.lang.tcl`, and the product man pages.

tcl and **tk** are being used extensively by the SDSS and DART projects in the Online Systems department, and by the CDF DAQ upgrade projects.

Chih-Hao Huang, x8076, huangch@fnal.gov

VMS

AXP (Alpha) FNALV Cluster Node Available

The new Alpha (AXP) node of the FNALV Cluster is now available for use. This node, a DEC 7630, is named FNALV1. With the removal of FNALF and FNALO, this processor will become the main processor in the cluster, so it is important that you make the switch to FNALV1 in a timely manner.

On the whole, the FNALV1 looks and feels the same as a VAX node. Many Fermilab products have been converted to run on this platform already and more will be forthcoming. The status of products for AXP is described below.

FNALV1 is approximately 6 times faster than FNALO, so you should see a dramatic improvement in performance when using the new platform. As the existing VAX machines in the FNALV cluster are retired, most of the available user and batch slots on FNALV will be on the AXP platform. Despite the speed of this machine, resources will be distinctly limited and the platform is not intended for analysis. Compute-intensive work and batch processing should be performed on UNIX platforms, either workgroup clusters or the FNALU or CLUBS platforms.

Accessing FNALV1

There are currently three types of connections to the new DEC 7630. To connect via DECnet, type the following:

```
$ SET HOST FNALV1
```

To connect via telnet type the following:

```
$ TELNET FNALV1
```

To connect via LAT type the following:

```
local> CONNECT FNALV_AXP
```

or, on the terminal servers on the dial-in modems:

```
local> LAT FNALV_AXP
```

Note, there is also a new LAT service (FNALV_VAX) to connect to a non-AXP system. If you have any trouble connecting to the new DEC 7630 feel free to contact the help desk at extension 2345.

Software available for AXP

MAIL and the standard editors are the same on both platform types. Many popular products such as VAXNEWS/INFO, TELEPHONE, and STOCK are already available. The suite of CERN products (CERN V94b), TeX (TeX 3.1415), and Ghostview are expected to be available by the time you read this. Although FINGER isn't available at this time, Multinet Finger is available either as `$ MU FINGER` or `$ MFINGER` (see `$ HELP MULTINET FINGER`).

ARCHIVE isn't available from the vendor and won't be until the middle of 1995, but you can log into a VAX node and archive any of your files from there. We are investigating making ARCHIVE available from FNALV1 by submitting the job automatically on a VAX, meaning that we won't have to wait until mid-1995 for the port of the code.

Running your own programs on FNALV1

You will need to recompile your programs explicitly for this platform architecture. Refer to the article on AXP Issues for more information on architecture-specific issues. Note, the compiler itself is now common between AXP and VAX, and there are some differences you may find when you attempt to recompile for either architecture.

It is the desire of the Computing Division to have most users convert to the AXP environment as quickly as possible or to move on to UNIX systems. If you have any questions concerning the changes to FNALV please feel free to contact Frank Nagy (at extension 4935) or Neal Schmidt (at extension 8242).

Judith Nicholls, x3989, nicholls@fnal

C D

AXP Issues for the FNALV Cluster

Introduction

The FNALV cluster has now been upgraded with a new DEC 7630 system (FNALV1). This system is a total departure from previous DEC VMS systems in that the underlying hardware is not a VAX. Although this system fully supports VMS, it is based on DEC's AXP architecture (also known as Alpha). This new platform provides a dramatic increase in CPU perfor-

mance but at a cost in complexity with the existing VAX/VMS systems. With the addition of FNALV1, FNALV has now become a mixed VAX-AXP architecture VMS cluster. It is important to understand the following compatibility issues.

VMS and DEC layered products

If your primary use of the FNALV cluster is with VMS and DEC layered products (e.g., MAIL, NOTES, DTR, EVE, etc.), then the transition to FNALV1 should be completely transparent to you. The reason is that the VAX and AXP systems are both running the OpenVMS operating system with nearly identical DCL command interfaces and utilities. Since the VAX and AXP use separate executable images, there are two separate system disks maintained in parallel for the two separate architectures. The few differences that still exist should be resolved in future upgrades. If you are familiar with the VAX/VMS syntax, you will have no problems using the AXP system.

Compatibility

Previously, one of the major advantages of VMS was that "a VAX was a VAX". Any executable image that was compiled and linked on one VAX could be copied to and executed on any other VAX, as long as the target VAX was not running an older version of VMS. Now things have changed. A program that has been compiled and linked on a VAX will never run on an AXP system and an AXP image will never run on a VAX. The VAX doesn't even recognize the AXP version as a valid executable image (the AXP at least knows what that the VAX image is and tells you it won't run on the AXP system). The same incompatibility applies to object files and object libraries -- a VAX object module will not work on an AXP machine, and vice versa.

This basic incompatibility means that you will need to have two versions of executables and object modules on the FNALV cluster. Various strategies in dealing with the AXP-VAX image conflicts are discussed below.

Software

FNALV has some third party commercial software. Some of these products are not yet available for the AXP (ARCHIVE in particular). Others never will be (Mass-11 for instance). Changes in the status of these products will be announced in future INFO articles.

Many LIB and SITE_PRODUCTS have already been, or are currently being, ported to the new AXP environment. However, several LIB and SITE_PRODUCTS packages are obsolete or no longer in use, and will not be ported to the AXP platform. Some products have their ports under active development and others are pending future work or demonstrated need (by user request) for an AXP port. Watch for future INFO announcements of newly completed AXP ports of LIB and SITE_PRODUCTS.

Any product that has not already been ported to the AXP environment will display the following error during SETUP on FNALV1:

```
%SETUP-W-NOTAXP-> 'PRODUCT-NAME' is not ready for
AXP usage.
```

If you require a LIB or SITE_PRODUCT that has not been converted, please contact the help desk (x2345 or E-mail to HELPDESK) or send e-mail to Mike Stolz at stolz@fnalv. This will help to determine the priority of products to be ported.

User-written Executables

Any program that needs to be run on either FNALV platform needs to be compiled and linked twice, once on a VAX system and once on the AXP. However, by default both of these images will have the exact same filename (e.g., `my_program.exe`). There are two suggested methods for maintaining these multiple executables for both the VAX and AXP systems. The first method is to create two separate directories to house the two separate groups of images and then create a logical at login time to point to the correct directory:

```
$ my_login=F$PARSE("SYS$LOGIN" ,,,, "NO_CONCEAL")
-    - "][" - "].;"
$ IF F$GETSYI("ARCH_TYPE") .EQ. 1 ! VAX = 1, AXP = 2
$ THEN
$    DEFINE/JOB/NOLOG hr$exe 'my_login'.vax]
$ ELSE
$    DEFINE/JOB/NOLOG hr$exe 'my_login'.axp]
$ ENDIF
$ RUN hr$exe:my_program.exe
```

This is the method that the VMS Systems Support group is using for the conversion of LIB and SITE_PRODUCTS. In this case, all of the VAX images will be located in the `[.VAX]` subdirectory, and all of the AXP images would be located in the `[.AXP]` subdirectory.

A second method of supporting dual architecture images is to create two images in the same directory, but differentiate them based on filename:

```
$ IF F$GETSYI("ARCH_TYPE") .EQ. 1 ! VAX = 1, AXP = 2
$ THEN
$    arch_type == "EXE_VAX"
$ ELSE
$    arch_type == "EXE_AXP"
$ ENDIF
$ RUN my_program.'arch_type'
```

In this method, you would need to remember to rename the object modules and executables created by the compilers and linker.

In porting to the AXP from the VAX, the problems you are most likely to encounter center around the new DEC Fortran and C compilers rather than problems concerning the AXP architecture itself. These new compilers are, by default, more strict about accepting code that conforms to the appropriate ANSI standards. Since these same compilers are now present on the VAX part of FNALV, you are may have already encountered the new compiler warning messages and are well along towards making your code AXP-ready.

For More Information

Further information on issues of migrating applications to an OpenVMS AXP system can be found in several manuals published by Digital Equipment Corporation:

Migrating to an OpenVMS AXP System:

■

Planning for Migration (AA-PV62A-TE)
Recompiling and Relinking Applications (AA-PV62A-TE)
Porting VAX MACRO Code (AA-PV64A-TE)

where the order numbers for these manuals are listed in the parentheses.

Questions can be addressed to Frank Nagy at extension 4935 or nagy@fnal or to Neal Schmidt at extension 8242 or nschmidt@fnal. An article in the August issue of Computing News entitled "FNALV Futures: A Mixed VAX-AXP Architecture Cluster" by Lauri Loebel Carpenter addressed in more detail the issues mentioned in this note.

Neal Schmidt, x8242, nschmidt@fnal

Frank Nagy, x4935, nagy@fnal

C D

Retirement of FNALF and FNALO

Two of the nodes in the FNALV cluster, FNALF and FNALO, are to be removed from the cluster. FNALF is part of a trade-in for the new node FNALV1 and it will be powered off and returned to DEC. FNALO is being moved to CDF's VMS cluster FNALD to help provide for RUN1B analysis needs.

FNALF will be retired first, with a target date of early December. FNALO will be removed slightly later.

Steve Wolbers, x3950, wolbers@fnal

Online Systems

DART V2

New software and hardware for DART V2 were described in last months newsletter article. Some software product upgrades were omitted due to space limitations and are included in this issue.

Please see the related article in the last newsletter for background. DART is available for IRIX V5.2. Full documentation for DART v2_0 can be found in the DART home page on WWW (URL = `http://fndaub.fnal.gov:8000/`). A list of the acronyms used in this article is available on this home page. All software can be distributed via the kits database on `fnsg01.fnal.gov` using **upd**.

Ruth Pordes, x3921, ruth@fnal.gov

Gene Oleynik, x2430, oleynik@fnal.gov

C D

dfm_hoist v1_2

dfm_hoist integrates **dfm** and **unix_hoist** software to provide a networked **dfm** server. With release v1_2, event data may be distributed over Ethernet using TCP/IP protocol from Sun or IRIX Unix processors to multiple processors (Unix or VMS). Prior to v1_2, **dfm_hoist** was available only for VxWorks processors. Release v1_2 also incorporates improved **dfm_hoist** server detection of client connection status.

Dave Slimmer, x4334, slimmer@fnal.gov

C D

vx_tools v1_6

vx_tools is a collection of useful code designed to supplement the VxWorks package. It provides generic and target specific code implementation to be used for applications running under the VxWorks real time operating system.

New features include:

1. VME TRACE facility, a debugging aid to trace execution of code through printed information. An important feature of TRACE is that the user can have two MVME 167 boards in the same crate, and use one to trace what happened in the other in the case of a crash. The current TRACE implementation is supported only for the MVME167.
2. VxWorks extensions that include an alternative task variable package to the one provided by VxWorks and exit handlers implemented in a similar fashion as the atexit function under UNIX systems.

Dennis Black, x4525, dblack@fnal.gov

Margherita Vittone, x2684, vittone@fnal.gov

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vxworks v2_0

This is the host development package for Wind River System's VxWorks release 5.1.1, including the GNU Tool Kit release 2.2.3.1, and VxGDB release 2.0. It is supported under both SunOS 4.1.3 and IRIX 4.0.5. Although this is a major upgrade of VxWorks, most of the changes are incremental. Features include:

- full ANSI Standard C compliance
- enhanced ANSI and POSIX compliance
- improved module loading and unloading
- improved system information routines
- basic memory management support
- cache library to support cache maintenance
- Unix-like environment variables
- structural changes to improve support across architectures
- extensive man pages (in nroff format)
- reorganized documentation, directories, and files

This product is available only with an appropriate license.

Dave Berg, x3021, berg@fnal.gov

vx_dart v2_1

The current release of **vx_dart**, v2_1, supports VxWorks 5.1.1 on the Motorola MVME-167, 166, 162, and 147 single board computers. In addition to the features of VxWorks 5.1.1, this release includes support for C++. For the 162 and 166 boards, VxWorks may be installed in FLASH; for the 167 board, it may be installed in the second EPROM bank. Either way, Motorola's ROM debugger remains in place, and may be configured to automatically boot VxWorks on RESET or power up.

Dave Berg, x3021, berg@fnal.gov

vx_fscc v2_1

The current release of **vx_fscc**, v2_1, supports VxWorks 5.1.1 on the FASTBUS Smart Crate Controller (FSCC) at ECO level PC4a. Along with the upgrade of VxWorks and the FSCC hardware, support for the FASTBUS Standard Routines has been reorganized. The products **fb_std** and **fb_fscc** now depend upon **vx_fscc** at the source level for board-specific header files, and the VxWorks system image initializes the FASTBUS interface and other FSCC hardware to a well-defined state at boot time. Some low level hardware functions that were previously implemented directly in **fb_fscc** are now supported by **vx_fscc**.

Other features of this release include support for C++, NFS and floating point emulation, updated drivers (Ethernet, serial port), and support for loadable as well as ROM-resident VxWorks. The board support package was compiled with optimization.

Dave Berg, x3021, berg@fnal.gov

fb_std and fb_fscc v2_0

The reorganization of products supporting the FASTBUS Standard Routines for the FSCC (and eventually, the FRC) has been completed, in conjunction with upgrading to VxWorks 5.1.1 and providing full support for the FSCC hardware enhancements collectively designated ECO level PC4a. In addition, the names of the sequencer macros have been made more mnemonic.

Simon Kent, x3904, kent@fnal.gov

Computer Usage

The tables and the chart below summarize the computer usage of the centrally-supported systems in the months of July, August, and September. The usage is displayed by platform in VUP-months.

Judith Nicholls, x3989, nicholls@fnal.gov

Accounting data for July 94 in VUPs

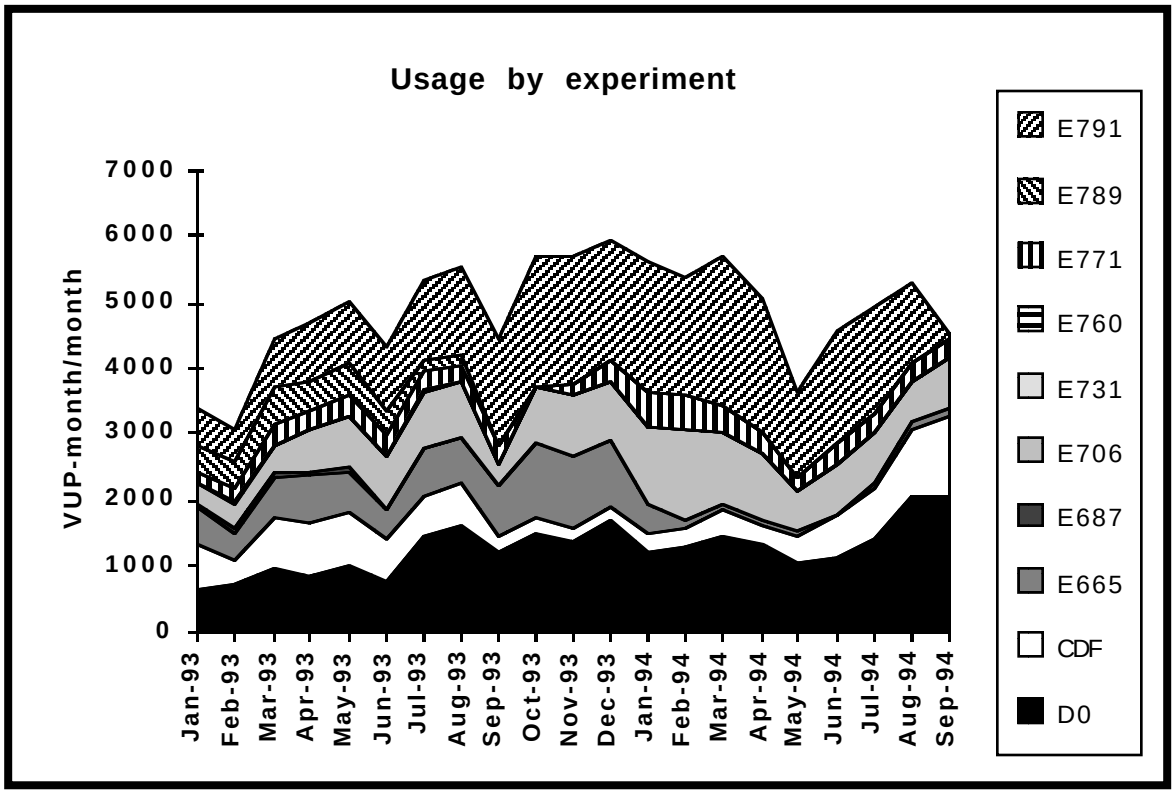
Group	FNALV	FNALD	D0FS	FNALD0	CDFSGA	CLUBS	FNALU	FNSG01	Farms	Total
E791	0	0	0	0	0	0	0	0	1619	1619
D0	0	0	63	231	0	0	0	0	1106	1400
CDF	1	256	0	0	176	0	0	0	344	776
E706	2	0	0	0	0	0	11	0	759	772
E771	0	0	0	0	0	0	0	0	289	289
Acc Theory	0	0	0	0	0	76	1	0	0	77
E665	0	0	0	0	0	11	1	0	54	66
E687	1	0	0	0	0	0	0	0	33	34
E683	11	0	0	0	0	0	0	0	0	11
E672	8	0	0	0	0	0	0	0	0	8
B Physics	0	0	0	0	0	0	5	0	0	5

Accounting data for August 94 in VUPs

Group	*FNALV*	*FNALD*	*D0FS*	*FNALD0*	*CDFSGA*	*CLUBS*	*FNALU*	*FNSG01*	*Farms*	***Total***
D0	0	0	44	230	0	0	0	0	1779	2053
E791	0	0	0	0	0	0	0	0	1206	1206
CDF	2	243	0	0	113	0	0	0	654	1011
E706	0	0	0	0	0	0	4	0	577	582
E771	0	0	0	0	0	0	0	0	316	316
E665	0	0	0	0	0	58	12	0	51	121
Acc Theory	0	0	0	0	0	82	0	0	0	82
E687	1	0	0	0	0	0	0	0	48	49
E761	0	0	0	0	0	9	0	0	0	9
E672	7	0	0	0	0	0	0	0	0	7
Astro	6	0	0	0	0	0	0	0	0	6
E683	5	0	0	0	0	0	0	0	0	5
B Physics	0	0	0	0	0	0	1	0	0	1

Accounting data for September 94 in VUPs

Group	*FNALV*	*FNALD*	*D0FS*	*FNALD0*	*CDFSGA*	*CLUBS*	*FNALU*	*FNSG01*	*Farms*	***Total***
D0	0	0	60	315	0	0	0	0	1780	2156
CDF	1	250	0	0	177	0	0	0	765	1193
E706	0	0	0	0	0	15	0	0	760	776
E665	0	0	0	0	0	0	3	0	760	763
E771	0	0	0	0	0	0	0	0	292	292
E665	0	0	0	0	0	37	3	0	122	162
E791	0	0	0	0	0	0	0	0	68	68
E687	0	0	0	0	0	0	0	0	23	23
USCMS	0	0	0	0	0	0	19	0	0	19
E683	7	0	0	0	0	0	0	0	0	7
Acc theory	0	0	0	0	0	4	2	0	0	6
E761	0	0	0	0	0	6	0	0	0	6
Astro	5	0	0	0	0	0	0	0	0	5
B Physics	0	0	0	0	0	0	2	0	0	2



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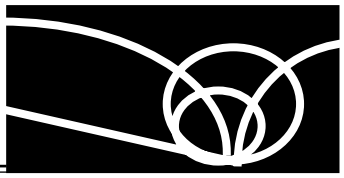

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FAX 8th Floor x2783
HELP DESK x2345
DATA CENTER SERVICES x2746
FCC x2746
Keith Coiley x2755
DATA COMMUNICATIONS
Trouble Reporting x3239
ONLINE SYSTEMS
Trouble Reporting/Tech Liaison, WH8E x3205
(On call pager through operations)
COMPUTER HARDWARE
Trouble Reporting x4373
EQUIPMENT SUPPORT GROUP
Repair Inquiry x2688
Chuck Andrle x4697
EQUIPMENT LOGISTICS SERVICES
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Al Thomas x3064
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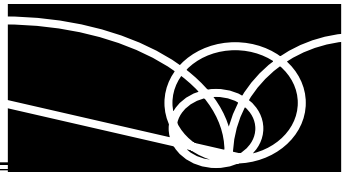
Callback System up to 14400 bps 840-8555
FNALV VAX Cluster ..... FNALV
FNALD VAX Cluster ..... FNALD
Internet Protocol ..... IP
Terminal Server ..... LAN

Change of Address



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